

In the Claims

- 1 1. [Original] A full color video projector system comprising:
- 2 a. a light source, producing a full spectrum beam in a first direction;
- 3 b. a splayed array of red, green, and blue dichroic reflector color
- 4 filters, said splayed array being located downstream from said light source and
- 5 being arranged so as to split said beam into red, green, and blue beam
- 6 components and re-direct them in a second direction;
- 7 c. a lenticular lens array, said array being transverse to said beam
- 8 components traveling in said second direction, said lens array comprised of a
- 9 plurality of elongated cylindrical lenses, said cylindrical lenses being arranged in
- 10 parallel, co-planar relation, each of said lenses outputting a red, green, and blue
- 11 color stripe illumination pattern at a lens array focal plane;
- 12 d. a relay optic downstream from said lens array focal plane in said
- 13 second direction, redirecting an incident composite of said red, green, and blue
- 14 illumination pattern in a third direction;
- 15 e. a reflective micro-mirror light valve downstream from said relay
- 16 optic in said third direction, said light valve including three sub-pixels for every
- 17 full-color screen pixel in a full color video image, said screen pixels being
- 18 arranged in parallel stripes which correspond to the size and configuration of
- 19 said color stripe illumination pattern outputted by said lenticular lens array, each
- 20 of said sub-pixels having an actuated state in which at least a portion of said
- 21 color stripe illumination pattern is reflected in a fourth direction, and an
- 22 unactuated state in which at least a portion of said color stripe illumination
- 23 pattern is reflected in a fifth direction;
- 24 f. a projection lens, said projection lens having an input port directed
- 25 toward said light valve, and an output port directed toward and focused upon a
- 26 projection screen; and,
- 27 g. light valve address circuitry interconnected to each of said sub-
- 28 pixels, said address circuitry actuating appropriate sub-pixels to redirect
- 29 corresponding portions of said color stripe illumination pattern in said fourth
- 30 direction and upon said input port of said projection lens, in accordance with
- 31 corresponding video image information.

1 2. [Original] A projector system as in claim 1 further including an
2 optical stop between said focal plane and said relay optic in said second
3 direction, said optical stop having an aperture sized to pass selected portions of
4 said red, green and blue beam components.

1 3. [Original] A projector system as in claim 2 in which said selected
2 portions are approximately $1/3$ of each said red, green, and blue beam
3 components.

1 4. [Original] A projector system as in claim 1, further including a
2 condenser lens, said lens being located downstream from said light source so as
3 to focus said beam in said first direction.

1 5. [Original] A projector system as in claim 1, in which said light
2 source is an arc lamp.

1 6. [Original] A projector system as in claim 1, in which said red and
2 green color filters are splayed apart a predetermined angle, and said green and
3 blue color filters are splayed apart said predetermined angle.

1 7. [Original] A projector system as in claim 1, in which said relay
2 optic contains at least one reflective element, and is located approximately mid-
3 way between said focal plane and said light valve.

1 8. [Original] A projector system as in claim 1 in which said optical
2 relay images said color stripe illumination pattern on said light valve in a 1:1
3 ratio.

1 9. [Original] A projector system as in claim 1 in which said light valve
2 address circuitry includes a light valve controller connected to a column driver
3 and a row driver, and in which said column driver is connected to one
4 connection on each of said sub-pixels, and in which said row driver is connected
5 to another connection on each of said sub-pixels.

1 10. [Original] A full color video projector system comprising:

2 a. light means for producing a full spectrum beam in a first direction;

3 b. means downstream from said light means for splitting said beam
4 into red, green, and blue beam components, and for re-directing them in a
5 second direction;

6 c. means for outputting a red, green, and blue color stripe illumination
7 pattern at a focal plane, said outputting means being transversely positioned to
8 said beam components traveling in said second direction;

9 e. optical relay means downstream from said lens array focal plane in
10 said second direction, for redirecting an incident composite of said red, green,
11 and blue illumination pattern in a third direction;

12 f. light valve means downstream from said relay means in said third
13 direction, for alternatively reflecting at least a portion of said color stripe
14 illumination pattern either in a fourth direction or in a fifth direction;

15 h. a projection lens, said projection lens having an input port directed
16 toward said light valve means, and an output port directed toward and focused
17 upon a projection screen; and,

18 g. means controlling said light valve means, for reflecting at least a
19 portion of said color stripe illumination pattern in said fourth direction, upon said
20 input port of said projection lens, in accordance with modulation information
21 corresponding to a video image.

1 11. [Previously Presented] A projector system as in claim 10 in which
2 said optical relay means contains at least one reflective element.

1 12. [Original] A projector system as in claim 10 in which said optical
2 relay means images said color stripe illumination pattern on said light valve
3 means in a 1:1 ratio.

1 13. [Original] A projector system as in claim 10 in which said light
2 valve means includes a plurality of full-color screen pixels corresponding to a full
3 color video image, said screen pixels being arranged in parallel stripes which
4 correspond to the size and configuration of said color stripe illumination pattern.

1 14. [Original] A projector system as in claim 13 in which each of said
2 screen pixels includes three sub-pixels, each of said sub-pixels having an
3 actuated state in which at least a portion of said color stripe illumination pattern
4 is reflected in said fourth direction, and an unactuated state in which at least a
5 portion of said color stripe illumination pattern is reflected in said fifth direction.

1 15. [Original] A projector system as in claim 10, in which said light
2 means is an arc lamp.

1 16. [Original] A projector system as in claim 10 further including an
2 optical stop between said focal plane and said relay optic means in said second
3 direction, said optical stop having an aperture sized to pass selected portions of
4 said red, green and blue beam components.

1 17. [Original] A projector system as in claim 16 in which said selected
2 portions are approximately 1/3 of each said red, green, and blue beam
3 components.

1 18. [Original] A reflective micro-mirror light valve, comprising: a
2 plurality of full-color screen pixels, said screen pixels being arranged end to end
3 to form parallel stripes, said parallel stripes corresponding to the size and
4 configuration of a color stripe illumination pattern, each of said screen pixels
5 including three sub-pixels, said sub-pixels including a reflective surface having an
6 actuated state in which at least a portion of said color stripe illumination pattern
7 is reflected in one direction, and an unactuated state in which at least a portion
8 of said color stripe illumination pattern is reflected in another direction.

1 19. [Original] A light valve as in claim 18 further including light valve
2 address circuitry interconnected to each of said sub-pixels, said address circuitry
3 actuating appropriate sub-pixels in accordance with data corresponding to a
4 video image.

1 20. [Original] A light valve as in claim 19, in which said light valve
2 address circuitry includes a light valve controller connected to a column driver
3 and a row driver, and in which said column driver is connected to one
4 connection on each of said sub-pixels, and in which said row driver is connected
5 to another connection on each of said sub-pixel.

1 21. [Previously Presented] A light valve as in claim 18 wherein the one
2 and the another directions are the only directions in which light of the color
3 stripe illumination pattern is reflected by the reflective micro-mirror light valve.

1 22. [Previously Presented] A light valve as in claim 18 wherein
2 individual ones of the sub-pixels are configured to reflect only one color of the
3 color stripe illumination pattern during all operations of the reflective micro-
4 mirror light valve.

1 23. [Previously Presented] A light valve as in claim 18 wherein
2 individual ones of the full-color screen pixels are configured to simultaneously
3 reflect light of the color stripe illumination pattern having at least two different
4 colors.

1 24. [Previously Presented] A light valve as in claim 18 wherein
2 individual ones of the full-color screen pixels are configured to simultaneously
3 reflect light of the color stripe illumination pattern having three different colors.

1 25. [Previously Presented] A light valve as in claim 18 wherein the
2 color stripe illumination pattern comprises a plurality of different colors which
3 are repetitively alternated in a common direction at a moment in time.

1 26. [Previously Presented] A light valve as in claim 25 wherein light of
2 the alternating different colors of the color stripe illumination pattern is
3 simultaneously present during operation of the reflective micro-mirror light valve.

1 27. [Previously Presented] A light valve as in claim 25 wherein an
2 ordering of the different colors does not change during all operations of the
3 reflective micro-mirror light valve.

1 28. [Previously Presented] A light valve as in claim 18 wherein the
2 parallel stripes collectively have a size substantially equal to the size of the color
3 stripe illumination pattern lying within an illumination stripe focal plane upstream
4 of the reflective micro-mirror light valve.

1 29. [Previously Presented] A light valve as in claim 18 wherein an area
2 defined by all of the full-color screen pixels of the reflective micro-mirror light
3 valve is substantially equal to an area of the color stripe illumination pattern
4 within an illumination stripe focal plane upstream of the reflective micro-mirror
5 light valve.

1 30. [Previously Presented] A light valve as in claim 18 wherein the
2 parallel stripes of the full-color screen pixels correspond to the color stripe
3 illumination pattern upstream from the reflective micro-mirror light valve.

1 31. [Previously Presented] A light valve as in claim 18 wherein a
2 plurality of the sub-pixels individually reflect light of the same color during all
3 operations of the reflective micro-mirror light valve wherein light is reflected to
4 create an image.

1 32. [Previously Presented] A light valve as in claim 18 wherein the
2 color stripe illumination pattern is generated prior to being reflected by the sub-
3 pixels.

1 33. [Previously Presented] A light valve as in claim 18 wherein the
2 colors reflected at a given moment in time are different for all immediately
3 adjacent ones of the sub-pixels located in a common direction.

1 34. [Previously Presented] A light valve as in claim 18 wherein the
2 full-color screen pixels individually comprise a substantially square shape and
3 respective ones of the sub-pixels of an individual full-color screen pixel
4 comprise substantially rectangular shapes collectively corresponding to the
5 substantially square shape of the respective individual full-color screen pixel.

1 35. [Previously Presented] A light valve as in claim 28 wherein the
2 color stripe illumination pattern is generated prior to being reflected by the sub-
3 pixels.

1 36. [Previously Presented] A light valve as in claim 29 wherein the
2 color stripe illumination pattern is generated prior to being reflected by the sub-
3 pixels.

1 37. [New] A light valve as in claim 18 wherein the full-color screen
2 pixels comprise full-color screen pixels of a single chip.